Reality V15.4

Product Updates

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Document control

Software Version	Document Status	Document Revision	Issue Date	Reason for Change
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Section 1: Overview

1.1 Introduction

To install the updates, the following should serve as a guideline. Full instructions are available on the website. Please note that instructions will vary between machine type.

UNIX/LINUX platforms:

The file is delivered as a 'compressed' file to save download time. Once the compressed file is loaded onto the target machine it must be uncompressed. Use the UNIX 'uncompress' utility on Solaris and AIX, use gzip -d on Linux. The resulting file will be a UNIX 'tar' file. This 'tar' file needs to be extracted into a directory. Change the directory using 'cd' to a suitable place to hold the contents of the tar file and then use 'tar –xvf <path to filename>' to extract the contents of the tar file. Once the contents of the 'tar' file have been extracted you are then ready to proceed with the installation.

To install all of the fixes, whilst logged in as the user 'realman', run 'install_fix –ay<absolute path to directory holding the fixes>'.

Windows Platforms:

The file delivered is a self-installing archive and can be run directly from the latest browser available. Alternatively, it can be downloaded and run as normal (double-click it in browser or type the name from command prompt).

Run a Windows Command Prompt, using right-click and selecting 'Run as administrator' and enter 'install_fix directory_path\file_name'.

You can also run the extraction using Explorer, however, you need to right-click Explorer and select 'Run as administrator'. Then run the file as normal by double-clicking the file_name.

The above use of 'Run as administrator' is due to changes made to Windows for security reasons. This should be used even if you have logged in as an Administrator.

1.2 Support

In case of any problems with either the software or the documentation, please send an email or visit the customer support portal website.

- reality@necsws.com
- https://reality.necsws.com/contact-us

Section 2: Product updates

2.1 Reality V15.1 product updates

The following fixes were released on 3rd August 2011.

Fix No	Bug No	Description
V15.1.0.0001	91077	Make SYS-UPDATE from V14.0 more resilient.

The following fixes were released on 17th February 2014.

Fix No	Bug No	Description
V15.1.0.0002	91084 91094	Correct restore of non-Dptr items into SYSTEM.
V15.1.0.0003	91059	Prevents error messages being displayed during verbs such as FIND when querying SQL-VIEW files for item-ids that do not obey SQL rules.
V15.1.0.0004	85687	Solaris: Mount shadow fails fsck on zfs file system.
V15.1.0.0005	91075	Resize existing AFS files during ACCOUNT-RESTORE.
V15.1.0.0006	91087	Windows: Cannot create a database using realfstab.
V15.1.0.0007	90994	Prevents RIF abort when SQL compiles "SELECT *". Now reports "Column '*'' not found".
V15.1.0.0008	-----	Add ability to import .reg file.
V15.1.0.0009	85684	Windows: realdump can hang trying to freeze the database.
V15.1.0.0010	91090	Enable mini web server to support % escape in URL and pdf documents.
V15.1.0.0011	85695	Skip logoff messages when aborted by RDB.
V15.1.0.0012	85697	Correct problems with updates of partial indexes.
V15.1.0.0013	85699	Fix sporadic issue where SP-JOBS fails to open jobs file.
V15.1.0.0014	85698	GET-LIST could display incorrect list length.
V15.1.0.0016	85688	Allow PERFORM or EXECUTE to optionally input from dynamic array data.
V15.1.0.0017	85700	Fix verification of multi clog save to remote tape.
V15.1.0.0018	91086 85665 91072	Enable HTTPS to access non validated server realprof fails to return any data realevent fails to send notification emails.
V15.1.0.0019	91097	Correct OPTIMUM-FRAME-SIZE and OPTIMUM-MODULO TCL verbs.
V15.1.0.0021	91106	Fix netadmin list all hosts with large number of hosts.

Fix No	Bug No	Description
V15.1.0.0023	91088 91105	Enhance SYS-UPDATE error recovery.

The following fixes were released on 29th May 2014.

Fix No	Bug No	Description
V15.1.0.0020	85698 91096	Correct 64bit optimisation of scan and move virtual instructions.
V15.1.0.0024	85713	Inhibit DataBasic history logging on a single level source file.
V15.1.0.0025	85711	Do not try to release any locks on a DataBasic Index or select variable.
V15.1.0.0026	-----	Improve info reported if parallel tlrestore fails.
V15.1.0.0027	91109	Allow DataBasic Object to operate with binary strings.
V15.1.0.0029	85724	Stop realcd core dump when using session licences.
V15.1.0.0030	85718	Allow 8GB raw log to be used.
V15.1.0.0031	85718	Fix various problems when malloc arena exceeds 4GB.
V15.1.0.0032	85299 91131	Enable ISTAT of large files.
V15.1.0.0033	91135	The DataBasic debugger is unable to stop or see the statement following an ECATCH Statement.
V15.1.0.0034	-----	NFM CDE full clean log access.
V15.1.0.0035	85727	Allow DR to continue after failover of failsafe master.
V15.1.0.0036	91138	Fix problem with DataBasic substring with -ve starts of binary strings.
V15.1.0.0037	90609	DELETE, EDELETE, PROC F-W and F-D now report if a file is update protected.
V15.1.0.0038	85731	Fix core dump when nesting index selects. Fix size of index key when reading index.
V15.1.0.0039	91148	Enable fix 31 to be installed correctly.
V15.1.0.0040	85732 85734	Fix indexes with a translate conversion and fix CREATE-INDEX (N of huge files.

Fix No	Bug No	Description
V15.1.0.0041	85729 85730	Stop TL-REJECTs when deleting clean logs. Enable tlmenu to deconfigure Failsafe.
V15.1.0.0043	-----	Completely remove Reality from Windows system.
V15.1.0.0044	85727	Add database instance with -i or -a.
V15.1.0.0046	85735	Reinstate CHARGE-TO display to WHO and U50BB.
V15.1.0.0047	91151	A DataBasic ACCESS abort could corrupt the DataBasic runtime stack.
V15.1.0.0048	91150	Fix creating multiple partition database in Windows.
V15.1.0.0049	-----	PCL TO PDF CDE.
V15.1.0.0050	-----	PF99.27 - Add initial support for despooler filters.

The following fixes were released on 20th June 2014.

Fix No	Bug No	Description
V15.1.0.0051	85736	Fix SQL view for 64 bit reality to SQLserver 2008.
V15.1.0.0052	-----	Correct issues seen ODBC/SQL in VB prog on 64 bit.
V15.1.0.0053	85714	Correct item body length of partial read of unchanged item.
V15.1.0.0054	85738	Diagnostic to help resolve SQL view problem.
V15.1.0.0055	91158	SQL DROP INDEX causes core dump.
V15.1.0.0056	85740	Add DataBasic session amd object variables to VARVAL and VARVALTYPE functions.
V15.1.0.0057	85743	Enable new despooler filter feature.

The following fixes were released on 12th November 2014.

Fix No	Bug No	Description
V15.1.0.0042	85733	Improve error messages if spinlock fails.
V15.1.0.0058	85745 85736	Correct issues seen ODBC/SQL in VB prog on 64 bit.
V15.1.0.0059	85714	Correct item body length of partial read of unchanged item.

Fix No	Bug No	Description
	85747	
V15.1.0.0060	91169	DBO - Fix mishandling of numbers ending in D. Fix memory leak.
V15.1.0.0061	85471 85472 85780	Move DR delayed delete file to database and fix various hangups.
V15.1.0.0062	85749	Ensure A*L*L FCB starts on a SR aligned boundary.
V15.1.0.0063	91172	Enable XML.GENERATE to handle mutivalue data including subvalues.
V15.1.0.0064	85753	Correct restore of V14.0 DataBasic object items.
V15.1.0.0065	91175	Correct print-catalog with no file but 2 or more items.
V15.1.0.0066	85754	Fix bug where OG items in an AFS file can be corrupted after upgrading to 15.1.
V15.1.0.0067	91178	Enable ISTAT ... (U to work on an active file.
V15.1.0.0068	85755	Suppress benign daemon log errors for remote files.
V15.1.0.0069	-----	PCL2PDF - Add font map, properties and back sheet configuration.
V15.1.0.0070	85757	Fixes PERFORM TERM after PRINTER ON.
V15.1.0.0071	85754	Preserve update time when AFS moves an item.
V15.1.0.0073	85765	The realroot script now works ok in Bourne shell.
V15.1.0.0074	85719	Enable RealEdit to select account/item name.
V15.1.0.0075	85766	Correct DataBasic debugger Trace on 64 bit Solaris.
V15.1.0.0076	85771	Correct AND-LISTS and AND-ITEMS when used with a null list/item.
V15.1.0.0077	85772	Stop closing remote index from disconnection session.
V15.1.0.0078	85778	This fixes loss of keyboard data from Accuterm.
V15.1.0.0079	85779	Aborting window @ logon no longer causes 100% cpu.
V15.1.0.0080	91031 91207	Enhance BVERIFY to fully compare objects while handling date and times separately.

Fix No	Bug No	Description
V15.1.0.0081	85777	Provide support for NpuRetries & NpuDelay configs.
V15.1.0.0083	91208	Stop LICENCE SFAM responding to junk item ID's.
V15.1.0.0086	91217	Correct ALL SORT xmode problem.
V15.1.0.0087	85787	Fix SELECT/COUNT of DIR-VIEW on latest RedHat/Centos.

The following fixes were released on 12th November 2014.

Fix No	Bug No	Description
V15.1.0.0085	85777	Diagnostic tracing for npu delays.
V15.1.0.0089	91214	Unix: Allow debug build to include/exclude fixes.
V15.1.0.0093	91219	Fix perl script warnings on Centos 7.
V15.1.0.0094	85789	Ensure that the ALL window CB is on 8-byte boundary.
V15.1.0.0097	91222	Enable DIR-VIEW to list large items.
V15.1.0.0098	91187	Enable build of reality on Centos 7.
V15.1.0.0099	84797	Enable read of pre V14.0 compressed tape.
V15.1.0.0100	85792	Correct BVERIFY of V14.0 or earlier object code.
V15.1.0.0101	-----	Fix corrupt dbfile on 32 bit Windows.
V15.1.0.0102	85702	Add SQLPRIV to SQL.DEMO.
V15.1.0.0103	85756 85776 91197 91227 91226 91225	Various updates to tlmenu.

The following fixes were released on 27th February 2015.

Fix No	Bug No	Description
V15.1.0.0072	91177	Allow database to be created with non AFS system files.
V15.1.0.0082	91200 91201 91205	DataBasic Dump CDE and various DataBasic debugger fixes.

Fix No	Bug No	Description
	91183 99.29	
V15.1.0.0088	91215	Windows: Enable DBUPDATE to run correctly when telneted into database.
V15.1.0.0104	85795	Fix TL-STATUS (B corruption of secondary status.
V15.1.0.0105	85792	Correct BVERIFY of V14.0 or earlier object code.
V15.1.0.0106	91232	Fix RealWeb insert item after DataBasic objects changes.
V15.1.0.0107	85748	Fix issue of SERVICE-LOG items not wrapping at 999.
V15.1.0.0108	91234	Stop binary DIR-VIEW on Unix clearing binary flag.
V15.1.0.0109	85804	Correct DataBasic CONVERT function if oldCharList is NULL.
V15.1.0.0111	85794	Allow DataBasic DUMP to work with external DataBasic.
V15.1.0.0112	91249	Enhance RESTORE to skip truncated DataBasic object items.
V15.1.0.0113	91242	Enhance DataBasic compiler to test string quotes in EQUATES at define time.
V15.1.0.0115	85808	Fix realdbck "ReloadPage Invalid argument" error.
V15.1.0.0116	85809	Correct passing of a common array as a subroutine parameter.
V15.1.0.0117	91256	Maintain registers over an "Non-numeric" warning error message.
V15.1.0.0118	85698 91096 85798	Correct 64bit optimisation of scan and move virtual instructions.

The following fixes were released on 29th May 2015.

Fix No	Bug No	Description
V15.1.0.0114	91200 91210 91235 99.30	DataBasic Debugger CDE.
V15.1.0.0119	91218	Correct ALL interface when reading an item that is not there.

Fix No	Bug No	Description
V15.1.0.0120	91267 91236 91283	Various fixes and enhancement to install_fix.
V15.1.0.0121	85810	Windows: tlmenu diagnostic for hang after redual.
V15.1.0.0122	85812 85813	Windows: fix buffer overun in smanager when loggong server reject. Stop 'Lock 6' error message in Windows event log when starting realserv.
V15.1.0.0123	85814	Raw printing fixed on Windows 8 / 2012.
V15.1.0.0124	85811	Correct return of file variable via a passed common variable assigned to a file variable.
V15.1.0.0125	91280	Correct DataBasic IPM timeout of 255, and add timeout validation.
V15.1.0.0126	91282	Fix T-STATUS after T-DEVICE clears local definition.
V15.1.0.0127	85788 91284	Ensure IPM sessions are correctly disconnected.
V15.1.0.0128	85825	Resolve problem where databases built on ZFS file system may be corrupt after system reboot.
V15.1.0.0129	91288	Windows: Fix DIR-VIEW problem where zero length files may not be visible.
V15.1.0.0130	91285	Enable millisecond time for DataBasic CONNECT/ACCEPT.
V15.1.0.0131	85823	Enable tlrestore to move an open file.
V15.1.0.0132	85820	Ensure sort context workspaces are correctly cleaned up.
V15.1.0.0133	85826	Fix PCL2PDF graphic fills when watermark used.
V15.1.0.0134	85828	Fix SIGSEGV when performing create of two indexes.
V15.1.0.0135	91297	Allow DataBasic Functions to use temp space.
V15.1.0.0136	91299	Fix bug in TCL stacker if max depth set to one.

The following fixes were released on 6th of November 2015.

Fix No	Bug No	Description
V15.1.0.0137	91272	Correct fault in an internal support option of the BASIC verb.
V15.1.0.0138	91134	Enhance NC.LIST to display number of named descriptors.

Fix No	Bug No	Description
V15.1.0.0139	85832	Enable generation of more than 100 clean logs in a day.
V15.1.0.0140	85831	Add Reality SYSTEM(117) and SYSTEM(118) and mvBase SYSTEM(35) to return program line number.
V15.1.0.0141	91304	Correct capture of a PERFORM SYS if result has no trailing LF.
V15.1.0.0142	91308	Remove name restriction on External User Functions when not saving result.
V15.1.0.0143	85835	Correct test for single or double quotes for PROCS & TCL2 verbs.
V15.1.0.0144	91309	Fix COPY-LIST with valid source account and invalid destination filename.
V15.1.0.0145	85836	Windows: Fix GPF when trying to read non-existent binary DIR-VIEW item.
V15.1.0.0146	85837	Stop 'Overwrite filesystem ...' prompt from mkdbase.
V15.1.0.0147	85839 91314	RealEdit custom buttons.
V15.1.0.0148	85838	DR: Recover form corrupt image response from master.
V15.1.0.0149	91317	Fix hang of account restore when restoring DIR-VIEW.
V15.1.0.0150	91324	Fix number of items displayed when using SELECT with View Compiled Programs option set.
V15.1.0.0151	91334	Fix database daemon abort on Linux when events enabled.
V15.1.0.0152	85845	Close vulnerability in mini web server where it could access any file on server.
V15.1.0.0153	91341	Correct DataBasic READPREV when used on a dynamic array.
V15.1.0.0154	91342	Clear confirm FD message in DESPOOLER.CONTROL file maintenance.

The following fixes were released on 25th of February 2016.

Fix No	Bug No	Description
V15.1.0.0155	91340	Improve BASIC compile error handling in LOOPs and CASE structures.
V15.1.0.0160	91336	Fix several SQL server issues including loss of rows.

Fix No	Bug No	Description
V15.1.0.0161	91349	Install DataBasic V15.1 compiler fix for DataBasic objects.
V15.1.0.0167	91321	Ensure CREATE-TRIGGER checks in correct account for trigger code.
V15.1.0.0168	85849 91353	Correct output of TL-AUTOSWITCH to report new clean log.
V15.1.0.0170	91354 91363	Windows: Enable shadow database to be configured.

2.2 Reality V15.2 product updates

The following Reality V15.2 service pack was released 29th of February 2016.

Fix No	Bug No	Description
V15.1.0.0156	91339	Allow DB verb to accept lower case commands.
V15.1.0.0157	PF12	Resilience Monitoring.
V15.1.0.0158	91348 91362 91350	Release HyperFiles.
V15.1.0.0159		Enable multi clean log delete from tlmenu.
V15.1.0.0162	85710 90244 91328 91329	V15.2 DataBasic enhancement including FORMAT, MATCH{ES} and MATCHFIELD.
V15.1.0.0163	91335 90666 91364 91365	Supply the password definition feature.
V15.1.0.0164	85549 85842 85840 91248 85717	Productise the DataBasic debugger module trap CDE.
V15.1.0.0165	85859	Productise the DataBasic dump enhancement.
V15.1.0.0166	3.17.1	Simple DataBasic Email API.
V15.1.0.0169	----	Enable Internal DataBasic Objects with JSON interface. Trial Only

Fix No	Bug No	Description
V15.1.0.0171	91000	Link default DataBasic compiler to user environment.
V15.1.0.0172	91277	SYS-UPDATE leaves T-DEVICE assigned.
V15.1.0.0200	V15.2	Reality 15.2 Release.

The following fixes were released on 4 May 2016.

Fix No	Bug No	Description
V15.1.0.0173	85863	Only display the extended VARVALTYPEs when configured to do so.
V15.1.0.0174	85867	Allow SEL-RESTORE of spooler items.
V15.1.0.0175	85862	Stop Reality crash when reading index after file save.
V15.1.0.0201	91371	Remove spurious "Password rejected" message from CREATE-ACCOUNT.
V15.1.0.0202	91368 91369 91370 91366 91378 91380	HyperFiles: Fix copy file handle in DataBasic. Fix for case insensitivity. Suppress RENAME-FILE and MOVE-FILE.
V15.1.0.0203	91373	Fix JSON parser when string starts with [. Fix missing "," after array definition. Allow creation of null fields. Fix bug in number detection in parameters. Fix GPF when returning long string.
V15.1.0.0204	85865	PCL2PDF fails to convert raster graphic when no start GL code present.
V15.1.0.0205	-----	Updates RealHttp API to include RESTful service functions and utility functions.
V15.1.0.0206	-----	Add RESTful services to RealWeb.
V15.1.0.0207	-----	Incorporate customer feedback to DEFINE-ENVIRONMENT & PASSWORD DEFINITIONs.
V15.1.0.0208	91296 91086	RHTTP interface - fix secure sockets connections on all platforms.
V15.1.0.0209	91377	Correct DataBasic debugger view of include source with alt file.
V15.1.0.0210	91381	Correct MATCHFIELD with out of range field.
V15.1.0.0211	85866	Correct COPY-LIST (D.
V15.1.0.0212	85873	Correct Unassigned Variable in OPTIMUM-MODULO (L.
V15.1.0.0213	91379	Add CAfile.pem to list of files updated by realclone -u.

The following fixes were released on 23rd May 2016.

Fix No	Bug No	Description
V15.1.0.0214	91388	Allow initial null password in SSM USER field 17 Remote Systems.
V15.1.0.0215	91389	Fix index update for zero length key when numeric descending encoding used.
V15.1.0.0217	91391	LOAD-LANG now effective multiple times.
V15.1.0.0218	85858	mkdbase: Fix handling of -F to set frame size. Fix resizing database with alternate SYSTEM modulo. Lock database earlier to prevent access.
V15.1.0.0219	91395 91384	Fix handling of special methods in DataBasic Objects.
V15.1.0.0221	91393	Unix: Fix install_fix handling of new Unix files.
V15.1.0.0222	91296 91086	Windows: Supply correct .dlls for secure sockets operation.
V15.1.0.0223	91396	Fix various cosmetic issues with SSM Define Password Definitions & Logon msg.

The following fixes were released on 31st August 2016.

Fix No	Bug No	Description
V15.1.0.0216	91386	Correct licence expiry + reporting.
V15.1.0.0220	91392 91397 91426 85883	Enhance DataBasic Object usage syntax.
V15.1.0.0224	85857	Enable database creation on file systems greater than 1TB.
V15.1.0.0225	91400	Improve error handling in SSM (6. Define Password Definitions.
V15.1.0.0226	91401 91404 85863	Only display the extended VARVALTYPEs when configured to do so.
V15.1.0.0227	91403	Stop RHTTP_SOAP_REQUEST reporting unassigned variable error.
V15.1.0.0228	85876 91405 91406	Enhance OPTIMUM-MODULO to cope with *'s in account and file names.
V15.1.0.0229	91399	Correct the SLEEP until DataBasic code.
V15.1.0.0230	91398	De-reference Qptr into DataBasic catalog item for BVERIFY.

Fix No	Bug No	Description
V15.1.0.0231	91407	Correct WRAPUP of BASIC of include item.
V15.1.0.0232	091372 091408 091409	Simple DataBasic Email API with Authentication.
V15.1.0.0233	91422	Stop RHTTP functions reporting SESSION_COOKIES as unassigned.
V15.1.0.0234	91413	Stop tlmenu generating perl warnings when starting TL.
V15.1.0.0235	91416	Return the correct resilience settings from listdb
V15.1.0.0236	91419	Extend initial source item verification of LOAD-BNF.
V15.1.0.0237	91423 91303	Stop install_fix generating error message when updating Unix file.
V15.1.0.0238	85882	PCL2PDF fails to convert raster graphic with short lines.
V15.1.0.0239	85884	Speed up initial connect to raw partition database.
V15.1.0.0240	-----	Add new script show_fix.
V15.1.0.0241	91383	Windows: Stop install_fix -a getting confused about service pack. Always update history record when updating fix.
V15.1.0.0242	91427	Enhance migration of POINTER-FILE to only timeout each remote account once.
V15.1.0.0243	85848	Enable sizemon to calculate new modulo for files larger than 2GB.
V15.1.0.0244	91402 91412	Enable mkdbase to change frame size when Vendor Emulation set.
V15.1.0.0245	91394	Allow Hyper Files to open QPTRs and remote files.

The following fixes were released on 20th March 2017.

Fix No	Bug No	Description
V15.1.0.0095	85790	Enable error recovery after failure to generate ROS index key.
V15.1.0.0247	91436	Enable DR restart after master TL-STOP START.
V15.1.0.0248	91437 91420	Speedup and add active list support for CSV-COPY.

Fix No	Bug No	Description
	91418	
V15.1.0.0250	85888	Handle error if password definition file missing from database or Denat.
V15.1.0.0251	91444	Add additional tests for an empty stack in English conversions.
V15.1.0.0252	85861 91414 91410	Isolate Basic Debugger from External and Embedded DataBasic contexts.
V15.1.0.0253	85891 85895	Add new priority 2 SYSMAN only LOGOFF-ALL TCL commands. Enable logoff.
V15.1.0.0254	91447	Enable realdbck on windows to use cache size greater than 0.5GB.
V15.1.0.0255	91450	Improve error handling around 2GB max workspace size.
V15.1.0.0256	85893	AIX Linux fix handling of ANALYZE after DataBasic PAUSE statement.
V15.1.0.0257	85894	Add filter to stop multiple DataBasic error dumps.
V15.1.0.0258	91448	Correct RND with requested numbers > 32k.
V15.1.0.0259	85896	Correct possible memory leak in index code.
V15.1.0.0260	85897	Opening files with indexes to named common can cause a core dump after a LOGTO.
V15.1.0.0261	91155	Fix killreal -l and netadmin permissions problems.
V15.1.0.0262	91451 91452 91474	Fix problems with DataBasic string numbers in CAT, CRT, NUM, ABS, INT, NEG and FOR.
V15.1.0.0263	91453	Enable core dumps on Windows.
V15.1.0.0264	85860	Stop minor state being cleared when process still waiting.
V15.1.0.0265	91456	Serial number installation enhancements.
V15.1.0.0266	91456	Serial number installation enhancements.
V15.1.0.0267	91457	Correct MCBX conversion when string is (8x)+1 characters long.
V15.1.0.0269	85901	Use frame size in calculation of STAT-FILE data definition of new modulo.
V15.1.0.0270	91465	Fix realfuser core dump on AIX.
V15.1.0.0271	91466	Allow empty object in JSON document.
V15.1.0.0272	-----	Fix problems in RHTTP ENCODE DECODE PARSE URL.
V15.1.0.0273	91466	Enable HTTP-SERVER to be shut down cleanly.
V15.1.0.0274	91468	DataBasic READT, WRITET not taking ELSE clause if unassigned tape.
V15.1.0.0275	91471	Add error handling to MCNP output conversion.
V15.1.0.0276	91472	Correct display of SSM 2) Define User Profile 7) Default Account Name.
V15.1.0.0277	91469	Speed up installing fixes on database.

Fix No	Bug No	Description
	91476	
V15.1.0.0278	85898	Add PLID to SamPortNew max ports warning.
V15.1.0.0279	85908 85910	Fix PCL2PDF GL x axis scaling. Fix slope calculation.

The following fixes were released on 17th August 2017.

Fix No	Bug No	Description
V15.1.0.0280	85906	Add Verbose display option to BUILD.PRINTERS.
V15.1.0.0281	91480	Various paths through the DataBasic FOR code treat a zero step differently.
V15.1.0.0282	91481	Report session licence expiry on logon + fixes to expiry reports.
V15.1.0.0283	91482	Allow LICENCEGRACEPERIOD to be superseded.
V15.1.0.0284	85905 85913	Windows: Fix malloc arena corruption causing core dump.
V15.1.0.0285	85915	Updating very badly sized AFS file can lock up holding group lock.
V15.1.0.0286	91485	Fix problem causing occasional duplicate items.
V15.1.0.0287	85911	Allow the PASSWORD command to go interactive if run from a program.
V15.1.0.0288	85914	Cannot break multithreaded tlrestore using ^C.
V15.1.0.0289	91486	Fix SIGSEGV for 'SYS xxx' by user level 0 1.
V15.1.0.0290	91367	Provide server to port mapping feature PF11.6.1.
V15.1.0.0291	85918	Enable TL-RESTORE to clear restoring status when it exits.
V15.1.0.0292	91360	Prevent database owner impersonation.
V15.1.0.0293	-----	Changes to allow onsite Reality build with UXC 2.2.
V15.1.0.0294	85921	Reduce memory usage of fsr.
V15.1.0.0295	85920	Suppress 'Post connection failure' messages in daemon.log when no verification required.
V15.1.0.0297	85919	Add option to CATALOG to suppress full path expansion of a Q-pointer source.

Fix No	Bug No	Description
V15.1.0.0298	85922	Add item name to error 402 if called from DataBasic.
V15.1.0.0299	91490	Reject sentence macros with same format as data definition.
V15.1.0.0300	85923	Fix LOGON port after it has died.
V15.1.0.0301	91456	Serial number installation enhancements.
V15.1.0.0302	85926	Enable use of REALLOGLEVEL in realityrc file on Windows, with fix 303.
V15.1.0.0303	85926	Reduce swamping of daemon log with TERMRD errors, with 302.
V15.1.0.0305	85881	Diagnostic to resolve multi-threaded restore issues.
V15.1.0.0306	85924	Allow DBSTART proc to run when password on SYSMAN account.
V15.1.0.0307	85928	Enable tlrestore on Windows to restore large images.
V15.1.0.0308	85929	Stop http probe test causing realserv to fail.
V15.1.0.0310	85932	Prevent unnecessary DataBasic garbage collection.
V15.1.0.0311	85933	Correct T-DUMP T option.

The following fixes were released on 15th May 2018.

Fix No	Bug No	Description
V15.1.0.0296	49260	Trigger CDE.
V15.1.0.0312	85935	tlmenu: Enable copy restore of all logs in recovery mode.
V15.1.0.0313	91493	Activate DataBasic split screen debugging.
V15.1.0.0314	91494	Correct minor SQLM bugs.
V15.1.0.0315	91501	Stop MOVE-FILE black holing file if destination is access protected.
V15.1.0.0316	85851	Correct ROSFS case insensitive Ilock handling.
V15.1.0.0317	85936	Fix issue logging on to specified port.
V15.1.0.0318	85937	Allow REMOVE and REMOVE.POS to work with a numeric variable.
V15.1.0.0319	91507	Correct File despooler with multiple jobs.

Fix No	Bug No	Description
V15.1.0.0320	91508 91511	Correct DataBasic debugger hex display of package and other variables.
V15.1.0.0322	85940	Fix Err 14 abort during LOGOFF, due to ACCESS(16) on named common file var.
V15.1.0.0323	85941	Fix issue of Reality core dumping in log off.
V15.1.0.0324	85939	Fix realdump not deleting shared memory on exit.
V15.1.0.0325	85942	Resolve issue with time in milliseconds wrong around midnight.
V15.1.0.0327	85943	Remove diagnostic fix 0305.
V15.1.0.0328	85944	Fix unassigned variable error in PCL2PDF.
V15.1.0.0329	91513	Fix build menu when unpacking libraries.
V15.1.0.0330	85946	Fix issue with SQLSRVR logging off when rowset exceeds 100 rows.
V15.1.0.0331	85949	Prevent cloned instance connecting to database in base instance.
V15.1.0.0333	91521	Correct date picture conversion code.
V15.1.0.0334	91519	Cannot bind database on Windows.
V15.1.0.0336	85948 85945	Fix DR delay between clean logs. Fix saving of recovery file.
V15.1.0.0338	85951	Avoid deleting clogs if not successfully saved.

The following fixes were released on 13th May 2019.

Fix No	Bug No	Description
V15.1.0.0304	90770 91191 91496 91498 91502 91510	Extend global md use to Qfiles and programs and restrict access.
V15.1.0.0321	91509	Ensure SYSTEM(15) always returns the correct information.

Fix No	Bug No	Description
V15.1.0.0326	91042 90757 91516 85712 91514 91523 91524	Add application keys & fix remote instant Q pointers etc.
V15.1.0.0332	85950 91522	Fix dedicated port ranges for ports > 400 and use of reserved ports.
V15.1.0.0335	90971	Ensure overlay items in ISIS{.TE} and REALLINK remain after a SYS-UPDATE.
V15.1.0.0337	91518	Fix internal objects problems with %ARRAY and %TYPE accessing arrays.
V15.1.0.0339	85176	Increase INPUT, inactivity and login timeouts to 45.5 hours.
V15.1.0.0340	85952	Stop substring extract of zero length being marked as binary.
V15.1.0.0341	85954	Fix DR client hang after clean log switch.
V15.1.0.0342	91530	Extend range of SYSTEM(9) CPU usage figure.
V15.1.0.0343	91531 91532	Ensure tidy up occurs when interrupting create index.
V15.1.0.0344	85953	Stop old restore clog being protected in multi clog list.
V15.1.0.0345	91536	Validate devices file against correct db config file.
V15.1.0.0346	91538	Possible problem with sequential access when splitting group.
V15.1.0.0347	85956	Serial number check fails after reboot of RedHat running on SSD.
V15.1.0.0348	91539	RealEdit Debugger enhancement.
V15.1.0.0349	91541	Make the DSPMON.CONTROL data section DL instead of DY for FILE-SAVE.
V15.1.0.0350	91470	Improve display of remote hosts in SSM USER configuration.

Fix No	Bug No	Description
V15.1.0.0351	91543 85958 85720	Fix SE format command, item locks on rename and item locked message SE ED ME.
V15.1.0.0352	91544	Optimise File name string space.
V15.1.0.0353	91545 91547 91553 91555	Various DataBasic Debugger enhancements.
V15.1.0.0354	91546	Ensure WHERE options are always passed to verb.
V15.1.0.0355	85960	Item lock taken in transaction persists after TRANSEND.
V15.1.0.0356	91547	Add VB style Interpolated Strings to DataBasic.
V15.1.0.0357	91548	Fix web server re-accept.
V15.1.0.0358	91550 91504	Do not update despooler device name when interface script does not exist.
V15.1.0.0359	91552 91555	Correct DataBasic debug LP and stop ? output going to printer.
V15.1.0.0360	85961	Enable hyper files to be created with a descending table. Allow Hyper Files to use compound correlatives.
V15.1.0.0361	91549	Enable multiple database update using tlmenu.
V15.1.0.0362	91551	Allow DataBasic PERFORM CAPTURING to capture results of child PERFORM's.
V15.1.0.0363	91554	Allow READBLK to correctly use specified or open block size.
V15.1.0.0364	91557	Ensure consistency with 5 and 10 character user and account passwords.
V15.1.0.0365	85962 91559	Fix core dump on severed connection. Add DDA 'write buffering' command.
V15.1.0.0366	91560	Fix NET-LOGON on Windows.
V15.1.0.0367	85963	Ensure temporary file names are unique to process.
V15.1.0.0368	91177	If no modulo in CREATE-FILE then always force AutoFile Size on.

Fix No	Bug No	Description
V15.1.0.0369	91561	Allow logon if no available item-locks and TCL logging active.
V15.1.0.0370	91563	Refinements to REST-ENABLE.

The following fixes were released on 30th April 2020.

Fix No	Bug No	Description
V15.1.0.0371	91565	Enable use of session licences on ssh connections.
V15.1.0.0372	91567	Enable tlmulti selection of primary secondary database. Prevents the deletion of Clean Logs (tlmulti) if the database is defined as a secondary.
V15.1.0.0373	91569 91566	Correct DataBasic debugger L and V commands when listing more than one include line.
V15.1.0.0374	85965	Enable RealEdit V1 to connect to database after enabled debugger on RealEdit V2.
V15.1.0.0375	91573	Add BITAND, BITOR, BITXOR, BITNAND, BITNOR, BITXNOR and BITNOT DataBasicfunctions. Documentation for these items is available on the Reality website on the usual documentation page.
V15.1.0.0376	85966	Resolve memory allocation issues on Solaris 11.4.
V15.1.0.0377	91574 90792 85550 90787 90786 91579	Enhance English sentence to allow dynamic modification and compatibility with other flavours such as D3 A) two DICT items to GLOBAL.MD NBR and ID B) new NI-SUPP and (J These remove the counter shown at end of report C) new TCL-SUPP D) English Enhancements to allow dynamic listings.

KEY	Modifies attribute	Changes
COL-HDR	3	The column header
OUT-CONV	7	The output conversion
SEL-CONV	8	The pre-selection conversion
COL-JUST	9	Column alignment type One of the following "LIRTU"
COL-WIDTH	10	The column width.

Fix No	Bug No	Description

		For compatibility with D3 & Unidata the following additional English modifiers will also be allowed:
		
		FMT - modifier allows any/all of the column header, justification & width to be altered.
		
		Format => FMT "[header | justification | width] "
		
		Where:
		
		header: ‘column header ' must be in single quotes.
		justification: A single “R”, “L”, “T”, “I” or “U” character.
		width: A decimal number representing the column width.
		Notes: The order of the fields is optional. Unquoted spaces, “%”, “*” and “#” are ignored. This allows the Unidata FMT “R%10” to work!
		
		CONV - this is the same as the SEL-CONV modifier.
		
		Examples:
		
		`LIST MD A16 COL-HDR "Wages" COL-JUST R COL-WIDTH '11`
		
		`LIST MD A16 COL-HDR 'Wages' COL-JUST "R" COL-WIDTH 11`
		
		`LIST MD A16 COL-HDR Wages COL-JUST 'R' COL-WIDTH '11'`
		
		All the above are the same showing various uses of the allowed delimiters, the only time single or double quotes MUST be used is within a column header if it contains a space character.
		
		The following are also examples of the above written with the FMT modifier.
		
		`LIST MD A16 FMT 'Wages'R11"`
		
		`LIST MD A16 FMT " R #11’Wages’ "`
		
		`LIST MD A16 FMT " %11 R ’Wages’ "`
		
		`LIST MD A16 FMT " *11 ’Wages’ R "`
		These would ALL list the MD using the following dynamic data definition item:
		
		001 | A

Fix No	Bug No	Description
		002 16 003 Wages 004 005 006 007 008 009 R 010 11
V15.1.0.0378	91575	Allow SAVE options X or Y to be used without options Z or S.
V15.1.0.0379	91576	Fix restore of data section create image.
V15.1.0.0380	85968	Stop SIGHUP in early stages of login cause reality to exit.
V15.1.0.0381	85967	Fix tlmenu syntax error on line 180.
V15.1.0.0382	91558	Fix listing LFB special file.
V15.1.0.0383	85969	Reduce eliminate hit processes on abortive terminal closure.
V15.1.0.0384	85970	Fix getcwd following symbolic links.
V15.1.0.0385	91580	Correct REST-ENABLE handling of @PARAM and provide updated RW_RESTFUL.
V15.1.0.0386	91582	Correct the index handling of null nodes and end of list event.
V15.1.0.0387	-----	Add clean log export feature. This is a licenced enhancement to extract data from a Clean log into JSON format. This patch also corrects some syntax errors within tlmenu.
V15.1.0.0388	85971 91583	READNEXT of the output of an ISELECT with KEYS-ONLY truncates the item count.
V15.1.0.0389	91585	Correct release of item locks for VERIFY-INDEX (T with MvStyleItemLocks set.

Fix No	Bug No	Description
V15.1.0.0390	91586	Correct Variable Unassigned error in Network File Maintenance.
V15.1.0.0391	91587	Correct DBO %Admin handling of both formats of the function.

V15.1.0.0392	91562	Add a number of monitoring utilities to listdb
		Usage
		`:listdb -h`
		`-h displays this help`
		`-d dbasename only for this database`
		`-s delimiter change default delimiter (|)`
		`-r gives resilience type`
		`-t gives type of database`
		`-o return database owner`
		`-l return database locked state`
		`-i return database instance path`
		`-a gives all information (-r,-t,-o,-l,-i)`
		`Extended options:`
		`-I return database instance number`
		`-S return database size type`
		`-m return database emulation code`
		`-u/-w return user licence usage or full details`
		`-c return the status of the instance`
		`-e return resilience configuration`
		`-f return resilience status`
		`-p return database space usage`
		`-V display all extended information`
		`-H display in Human readable format`

V15.1.0.0393	91588	New SP-SUMMARY verb to summarise form queue contents. **SP-SUMMARY** Summarises the Spooler's formqueues contents and statuses. **Syntax** SP-SUMMARY **Form Queue Summary Screen** Entering SP-SUMMARY at TCL initially displays a list of formqueues similar to the following:

Fix No	Bug No	Description

```
15:12:30 26 Mar 2020        64 Print Jobs Page 1/ 1

Form queue   Jobs Oldest   Form queue Jobs   Oldest

DAVES1        1 26 Mar 20 10:54

STANDARD      63 08 Nov 19 11:43



1. Switch view 2. SP-STATUS 3. SP-JOBS 99. Exit

Enter action code / Option (P#)
```

This initial screen displays a list of current formqueue names together with their total number of print jobs and the time and date of the oldest job. At the bottom of the screen, four action codes are displayed. Action codes 2 and 3 correspond to their equivalent TCL command that performs the same function.

Note

This screen only shows the status of queues in the Reality environment.

Form Queue Status Fields

Form Queue Name	The name of the formqueue. This field is 17 characters wide. Names over 17 characters long are truncated.
Jobs	The total number of jobs currently in the formqueue.
Oldest	The date and time of the oldest job in the formqueue.

Selecting an Action Code

To select a particular action code you enter the appropriate number at the screen prompt.

Selecting a Screen Page

The Form Queue Summary display may contain more than one screen of Spooler status information. The number of pages available and the current page number are displayed at the top right corner of the screen. To page through the screens, press RETURN. To skip to a particular page, enter P, followed by the page number (#).

Fix No	Bug No	Description

Use of the Equivalent TCL Command

Instead of selecting an action code from the Form Queue Status screen, you can enter the equivalent TCL command. For example, instead of using Action Code 2, you can enter the SP-STATUS command at TCL.

Action codes with equivalent TCL commands are listed at the beginning of this topic. The syntax for each TCL command is also described in this section.

Action Code 1 Switch View

Switches the display to the alternative view showing a summary of the statuses for each formqueue similar to the following:

Form Queue Status Summary Screen

```
13:52:42 30 Apr 2020     2 Print Jobs      Page 1/ 1

Queue Name Status Number ..... Size ..... ....
Copies ....

                   Jobs Total Printed Total Printed

STANDARD Hold       2     3      0      2     0



1. Switch view 2. SP-STATUS 3. SP-JOBS 4. Reset 99.
Exit

Enter action code / Option (P# / Q quename)
```

This alternate screen displays a list of current formqueue names with a breakdown of their jobs summarised by status, together with their total number of print jobs and totals for their sizes and copies. At the bottom of the screen, fiver action codes are displayed. Action codes 2 and 3 correspond to their equivalent TCL command that performs the same function.

Note

This screen only shows the status of queues in the Reality environment.

Form Queue Status Fields

Form Queue Name	The name of the formqueue. This field is 17 characters wide. Names over 17 characters long are truncated.
Status	The status of jobs currently in the formqueue.

<table>
<tr><th>Fix No</th><th>Bug No</th><th>Description</th></tr>
<tr><td></td><td></td><td>
<table>
<tr><td>Number Jobs</td><td>The total number of jobs of that status in the formqueue.</td></tr>
<tr><td>Size Total</td><td>The total size of the jobs of that status in the formqueue.</td></tr>
<tr><td>Size Printed</td><td>The total printed size of the jobs of that status in the formqueue.</td></tr>
<tr><td>Copies Total</td><td>The total number of copies of the jobs of that status in the Formqueue.</td></tr>
<tr><td>Copies Printed</td><td>The total number of copies printed of the jobs of that status in the formqueue.</td></tr>
</table>
Action Code 1 Switch View
Switches the display back to the initial view showing a summary of jobs for each formqueue.
Action Code 4 Reset Selection
Resets the screen so that it displays summarised details for all formqueues. This may be used after a Q option has been entered at the prompt:
<code>Enter action code / Option (P# / Q quename)</code>
that restricts the display to a single formqueue.
Exiting to TCL
To exit to the TCL prompt, select Action Code 99.
</td></tr>
<tr><td>V15.1.0.0394</td><td>91589</td><td>
realevent enhancements for items and extended html templates
This adds new options to the existing realevent command
Parameters
htmltemplate Path to html message template.
<table>
<tr><th>Notifiers</th><th>Description</th></tr>
<tr><td>item</td><td>Create a file for each notification in the directory with a prefix specified by the recipient, or if blank, defaults to 'files/event.'. The file name is suffixed with a unique ascending identifier based on the date/time. This same identifier is included in the item as an additional field 'Number: '</td></tr>
<tr><td>htmle</td><td>As 'html' but adds the new field 'Number: ' containing a unique</td></tr>
</table>
</td></tr>
</table>

Fix No	Bug No	Description
		ascendingidentifier based on the date/time.
V15.1.0.0395	91434	New NEW.LISTVERBS verb to provide improved layout of details over original LISTVERBS verb **Syntax** **NEW.LISTVERBS** {(options} **Options** Default is to show all verb definitions from the GLOBAL.MD, any alternative MD and the local MD.

Option	Description
N	No page. Suppresses automatic paging.
P	Printer. Sends output to printer assigned to your port.
G	Global MD. Only show entries in the GLOBAL MD.
A	Alternative MD. Only show entries in the users alternative MD.
M	Local MD. Only show entries in the users MD.
X	Extended. Show all items in the MD rather than just verbs. This a debugging option.

Example

```
:NEW.LISTVERBS
```

The command clears the screen and displays a listing similar to the following:

```
Page 1                          10:42:53 24 Oct
2019
Name and location .. Code ... Type ..... Details
............
ADDD        PA      TCL-I     End points 40A0
/DAVES/
ADDS        V       Synonym   for ADDX
/DAVES/ALT.MD,ALT.MD
ADDX        PA      TCL-I     End points A0
/GLOBAL.MD/
```

<table>
<tr><th>Fix No</th><th>Bug No</th><th>Description</th></tr>
<tr><td></td><td></td><td>
<pre>AFS-CLEAR P DataBasic catalogued in
POINTER-FILE
/DAVES/ on SYSFILES as AFS-
CLEAR
AND-ITEMS PL TCL-II End points 2,A471
/DAVES/ parameters Z
BSELECT PA TCL def End points 35,4D,352B
/DAVES/</pre>
</td></tr>
<tr><td>V15.1.0.0396</td><td>85972</td><td>
New PH-MONITOR verb to monitor output of TIPH process, enhancement to PH-START

Displays the latest output lines of a specified TIPH port.

Note
The M option of PH-START must be used for this verb to work on Windows systems.

Syntax

<code>PH-MONITOR portno {lines}</code>

Syntax Elements

Default is to show all verb definitions from the GLOBAL.MD, any alternative MD and the local MD

<table>
<tr><th></th><th></th></tr>
<tr><td>portno</td><td>The port number of the TIPH to display the output from.</td></tr>
<tr><td>lines</td><td>The number of lines to display from the end of the TIPH output. If not specified then the default is the last 10 lines..</td></tr>
</table>

Example

<pre>:PH-MONITOR 402</pre>

The command displays last 10 lines (the default) of the output from the TIPH running on port 402.

<pre>:PH-START
Enter task id for TIPH task?TEST
Enter port number for TIPH task?
Enter options?M</pre>
</td></tr>
</table>

<table>
<tr><th>Fix No</th><th>Bug No</th><th>Description</th></tr>
<tr><td></td><td></td><td>
<pre>Enter account for TIPH job?SYSMAN
Enter account password?
Enter command stream <CR to end>
Use '<' for a null line
>WHERE
>POVF
>TIME
>SLEEP 120
>OFF
>
[1000] Tiph job started on account 'SYSMAN' using port 402
:PH-MONITOR 402
Last 10 lines of TIPH output for port 402
:POVF
Total size 1.8 GB
Total free 125.1 MB
Percent free 6.95
:TIME
17:01:18 22 Apr 2020
:SLEEP 120</pre>
PH-START
<table>
<tr><th>Option</th><th>Description</th></tr>
<tr><td>M</td><td>Enables monitoring tag in TIPH output (required to work on Windows).</td></tr>
</table>
</td></tr>
<tr><td>V15.1.0.0397</td><td>91591</td><td>Enhance LISTFILES to allow sorting of files by descending total file size.
LISTFILES
<table>
<tr><th>Option</th><th>Description</th></tr>
<tr><td>V {limit}</td><td>Sort the output by the descending total size of each file. An optional limit may be specified to restrict the output to files with a total size of over that value.</td></tr>
</table>
</td></tr>
<tr><td>V15.1.0.0398</td><td>91593</td><td>New GSSM verb to allow a global update of items in the files NETWORK, USERS and SECURITY (as controlled with menu within SSM).</td></tr>
</table>

Fix No	Bug No	Description
		GSSM Allow the bulk updating/creating of user, network or security items from a SELECT list that are based on an existing or new item. This uses the existing SSM screens for USERS, SECURITY and NETWORK to allow modifying an existing item or creating a new one. **Syntax** `GSSM {?} item ({U}{N}{S}{A}{C}{M}` Default is to show the usage details

Option	Description
?	Show the usage details.
item	The item id of the USERS, SECURITY or NETWORK source item to be used as the basis for the updating/creating. This can be an existing item or can be created (See C option). There are restrictions to the items than can be used.
U	This is to affect the USERS file items. When using an existing item, the description and password fields cannot be modified. The following USER items are reserved cannot be used as a source item: DEFAULT, DSPMON, FILEDSP, NETDSP, REMFS, RLTYXDSP, SQLDEMO, SYSMAN and TAPEDSP.
N	This is to affect the NETWORK file items. When using an existing item, the description and CCI fields cannot be modified. The following NETWORK items are reserved cannot be used as a source item: DEFAULT
S	This is to affect the SECURITY file items. The following SECURITY items are reserved cannot be used as a source item: DEFAULT, DEFAULT.EXPLORER, DEFAULT.HARNESS, DEFAULT.REALWEB, DEFAULT.WEBSERVICE, REMFS, SYSMAN, SYSMAN.EXPLORER and TL.SECURITY.
A	Add any items from the select list that do not already exist.

Fix No	Bug No	Description

C	Allow the creation of the source item if it does not already exist.
M	Allow modification of the active select list of items or creation of a new select list if one is not active (See list maintenance details below). The list maintenance will validate that each entry exists in the file before adding to the list unless combined with the A option.

Restrictions

Can only be run from the SYSMAN account.

Comments

One of options U, N or S must be specified.

Newly created items based on the source item will use their id as the description rather than the source items description.

If no changes are made to an existing source item using either EX or FI, the items in the active select list will not be changed and will report "No changes made."

If the existing source item is deleted using FD or a new item is abandoned using EX, the items in the active select list will not be changed and will report "'<itemid>' has been deleted."

Examples

- To modify/create users based on a new user USER0, with an active select list containing the items USER1, USER2 and USER3 where only USER1 exists in USERS

  ```
  3 Items selected.
  >GSSM USER0 (UCA
  <set up USER0 as required and then FI>
  Apply changes to supplied list of items (Y/N) Y
  'USER1' has been updated.
  'USER2' has been added.
  'USER3' has been added.
  ```

  The options used are U for USER items, C for creating the source item if necessary and A to add any items that do not exist.

- To modify existing entries based on an existing entry NETWORK0, where the list of entries to maintain will be entered manually. This is useful to

Fix No	Bug No	Description

		create a list where it is difficult to generate an active select list
		:GSSM NETWORK0 (NM
		`<enter the list of entries and confirm>`
		`<modify NETWORK0 as required and then FI>`
		`Apply changes to supplied list of items (Y/N) Y`
		`'NETWORK1' has been updated.`
		`'NETWORK2' has been updated.`
		`'NETWORK3' has been updated.`
		The options used are N for NETWORK items and M to maintain a list of entries.
		List Maintenance
		This will allow the entries in an active selection list to be modified or if no list is active, create a list of entries.
		The initial display (for example with items from an active selection list) may appear as
		`GSSM`
		`Maintain list of USERS item ids`
		`==========`
		`Page 1 of 1`
		1. USER1
		2. USER2
		3. USER3
		Option:
		`'P'rev Page, 'N'ext Page, 'F'irst Page, 'L'ast Page, 'S'ort Items, 'H'elp '*' add all items in file, 'A'dd items, 'D'elete items, 'C'ompleted, 'Q'uit`
		Each command is accessed as a single keystroke with the available commands being described when the H key is pressed.
		`GSSM`
		`Maintain list of USERS item ids`
		`==========`

Fix No	Bug No	Description
		'S'ort items Sort the list into alphabetical order (after confirmation) and redisplay the list starting at the first page 'F'irst page Display the first page of the list if not already displayed 'N'ext page Display the next page of the list if not at the last page 'P'revious page Display the previous page if not at the first page 'L'ast page Display the last page if not already at the last page '*' Add items from the file that are not already in the list 'Q'uit Abandon this list (after confirmation) 'C'omplete The maintenance of this list is complete (after confirmation) When 'A'dd items Add items to the end of list until a null item is entered 'D'elete items Delete items from the list until a null item is entered 'V'alidation Toggle checking that the entries exist in the file before adding to the list. 'CR' to return
V15.1.0.0399	91598	Additional Trigger types now available **Trigger-type** The type of trigger – the following are now available: **READ or PRE-READ** Runs the trigger routine before reading an item from the file. **POST-READ** Runs the trigger routine after reading an item from the file. **CLEAR-FILE** or **PRE-CLEAR-FILE** Runs the trigger routine before a CLEAR-FILE operation on a file data section. **POST-CLEAR-FILE**

Fix No	Bug No	Description
		Runs the trigger routine after a CLEAR-FILE operation on a file data section. **DELETE-FILE** or **PRE-DELETE-FILE** Runs the trigger routine before a DELETE-FILE operation on a file dictionary or data section. **POST-DELETE-FILE** Runs the trigger routine after a DELETE-FILE operation on a file dictionary or data section. **Syntax** **`DELETE-TRIGGER file-specifier [trigger-type || * ]`** The type of trigger may be: WRITE, PRE-WRITE, POST-WRITE, DELETE, PRE-DELETE, POST-DELETE, READ, PRE-READ, POST-READ, CLEAR-FILE, PRE-CLEAR-FILE, POST-CLEARFILE, DELETE-FILE, PRE-DELETE-FILE or POST-DELETE-FILE (see CREATE-TRIGGER) DELETE-TRIGGER file-specifier * will remove all triggers from a file.

		New Verb LIST-ALL-TRIGGERS
		LIST-ALL-TRIGGERS
		Lists all the triggers associated with a Reality account.
		Syntax
		`LIST-ALL-TRIGGERS {file-specifier}`
		Comments
		The file specifier may be a local file (dictionary or data section), the master dictionary of an account or a combination of both. Triggers cannot be associated with Q-pointers. If no file specifier is provided, the current account is assumed.
		Example
		`:LIST-ALL-TRIGGERS /LIVE-ACCOUNT`
		`Listing all triggers in Account 'LIVE-ACCOUNT'`
		`LIVE-ACCOUNT`
		`  STOCK`
		`  WAREHOUSE`
		`  PRE-READ: WHSE.TRIG`
		`  HISTORY`
		`  PRE-READ: HIST.TRIG`
		`  POST-WRITE: HIST.TRIG`

<table>
<tr><th>Fix No</th><th>Bug No</th><th>Description</th></tr>
<tr><td></td><td></td><td>

```
ORDERS
  ORDERS
          POST-WRITE: ORDER.TRIG
```

</td></tr>
<tr><td></td><td></td><td>

Enhancement to ACCESS Function

ACCESS(30)

For each of the different calling environments, ACCESS(30) returns a number associated with the command or reason for entry.

<table>
<tr><th>Environment</th><th>ACCESS(23)</th><th>ACCESS(30)</th><th>Calling Sub-environment</th></tr>
<tr><td>Trigger</td><td>1</td><td>0</td><td>PRE WRITE trigger.</td></tr>
<tr><td></td><td></td><td>1</td><td>POST WRITE trigger.</td></tr>
<tr><td></td><td></td><td>2</td><td>PRE DELETE trigger.</td></tr>
<tr><td></td><td></td><td>3</td><td>POST DELETE trigger.</td></tr>
<tr><td></td><td></td><td>4</td><td>PRE READ trigger.</td></tr>
<tr><td></td><td></td><td>5</td><td>POST READ trigger.</td></tr>
<tr><td></td><td></td><td>6</td><td>PRE CLEAR FILE trigger.</td></tr>
<tr><td></td><td></td><td>7</td><td>POST CLEAR FILE trigger.</td></tr>
<tr><td></td><td></td><td>8</td><td>PRE DELETE FILE trigger.</td></tr>
<tr><td></td><td></td><td>9</td><td>POST DELETE FILE trigger.</td></tr>
<tr><td>Conversion</td><td>3</td><td>0</td><td>CALL conversion code.</td></tr>
<tr><td></td><td></td><td>2</td><td>B conversion code.</td></tr>
<tr><td></td><td></td><td>3</td><td>User-defined User Exit.</td></tr>
</table>

</td></tr>
<tr><td>V15.1.0.0400</td><td>91590</td><td>

Add new TIDYPF verb

TIDYPF

Display saved lists and cataloged items associated with accounts that no longer exist and optionally remove them.

Syntax

</td></tr>
</table>

Fix No	Bug No	Description

		`TIDYPF {account} {(options}`
		Syntax Examples
		The default is to show all lists and catalogued items for accounts that do not exist
		{account} — The name of an account (either existing or no longer existing - see below). A list of accounts can be supplied from an active select list. If no account name is supplied, the default is to locate items for non-existent accounts.
		
		Option — Description
		N — No page. Suppresses automatic paging (No Page).
		R — Remove items when prompted to confirm. This only works for a single account that must not exist else this option is ignored.
		D — Does not show any details and does not show any prompt for confirmation. Each item that is deleted is represented by a dot character. This must be used in conjunction with the R option.
		L — Only consider saved lists.
		C — Only consider catalogued items.
		E — Include existing accounts to produce an output similar to LISTPF. This will ignore the R option.
		A — Produce an alternative view of the items.
		Example
		`:TIDYPF`
		The default command displays all saved lists and catalogued items for accounts that do not exist
		`:TIDYPF`
		`Listing possibly abandoned catalogued programs and lists` **`Page 1`**

Fix No	Bug No	Description
		Account ..... Type Item..... Last Modification ..... DATA-BACKUP L LIST-FEB19 05 Mar 2019 04:11:59PM DATA-BACKUP L SAVED-LIST 23 Apr 2018 08:44:12AM *** TESTACC2018 C TEST_PROG 25 Feb 2019 02:37:09PM :TIDYPF (A The default command displays an alternate view **:TIDYPF (A** Listing possibly abandoned catalogued programs and lists **Page 1** **Account/Item ..... Last Modification .....** DATA-BACKUP Saved Lists LIST-FEB19 05 Mar 2019 04:11:59PM SAVED-LIST 23 Apr 2018 08:44:12AM TESTACC2018 Cataloged Programs TEST_PROG 25 Feb 2019 02:37:09PM :TIDYPF TESTACC2018 (R Displays the saved lists and catalogued items for the TESTACC2018 that no longer exists and allow the items to be removed. **:TIDYPF TESTACC2018 (RA** Listing possibly abandoned catalogued programs and lists **Page 1** **Account/Item ..... Last Modification .....** TESTACC2018 Catalogued Programs TEST_PROG 25 Feb 2019 02:37:09PM Do you still want to delete these items (Y/N) ? Y Deleted TESTPACC2019_O*C*TEST_PROG from POINTER-FILE : **Listing SAVED-LISTS in existing accounts**

<table>
<tr><th>Fix No</th><th>Bug No</th><th>Description</th></tr>
<tr><td></td><td></td><td>On the majority of systems, multiple users construct LISTS with the use of SAVE-LIST, COPY-LIST etc. These can adversely affect the behaviour of the system by ‘filling’ POINTER-FILE.
<code>TIDYPF accountname (EL</code>
This command will display all SAVED LISTS within the named account, any unwanted items may then be removed with DELETE-LIST.</td></tr>
<tr><td></td><td></td><td>Enhance DELETE-ACCOUNT
DELETE_ACCOUNT
Syntax
<code>DELETE-ACCOUNT {account-name} {(options}</code>
<table>
<tr><th>Option</th><th>Description</th></tr>
<tr><td>D</td><td>Suppress detailed listing.</td></tr>
<tr><td>N</td><td>Suppress paging of output.</td></tr>
<tr><td>C</td><td>Clean up possibly abandoned lists and catalogued items.</td></tr>
</table></td></tr>
<tr><td>V15.1.0.0401</td><td>91595</td><td>New Verb XDT
XDT
Displays dates and times converted between internal and external formats.
Syntax
<code>XDT [value] {(options}</code>
<table>
<tr><th>Option</th><th>Description</th></tr>
<tr><td>A</td><td>Use alternative display format. Times will be displayed in 12-hour format and dates with 2-digit years. The defaults are 24-hour and 4-digit years.</td></tr>
<tr><td>I</td><td>Inhibit prompt for value if no date/time value has been specified as part of the command.</td></tr>
</table>
Operation
The command will attempt to determine the type of value supplied from its format. If no value is supplied, the default is to use the current date and time and prompt for</td></tr>
</table>

Fix No	Bug No	Description
		a value. If the value supplied is ambiguous then both time and date results are displayed. **Comments** The date format is recognised and displayed using the current DATE-FORMAT setting. The use of full stops in times is determined by the current setting of the ALT.MT environment option. **Examples** The following command displays the current date and time in both internal and external formats and prompts for a value to be converted. **:XDT** Externally 15/06/2020 11:11:26 Internally 19160 40286 Enter date or time value: Show the possible date and time for a numeric value **:XDT 12345** Externally 18/10/2001 03:25:45 Internally 12345 12345 Show the time and value for 10 minutes before midnight **:XDT -00:10:00** Externally 23:50:00 Internally 85800 Accept a full date and display its value using a 2-digit year **:XDT 23 March 1964 (A** Externally 23/03/64 Internally -1378 Interpret the value with dots as a time rather than a date when the environment option ALT.MT has been set and display the results using 12-hour format **:XDT 13.23.45 (A** Externally 01:23:45PM Internally 48225
V15.1.0.0402	91596	New Verbs – LIST-TABLE and SORT-TABLE **LIST-TABLE and SORT-TABLE** Generates an English listing in the same way as LIST or SORT but formatted similar to an SQL SELECT statement and is not paged. **Syntax** As for LIST/SORT.

<table>
<tr><th>Fix No</th><th>Bug No</th><th>Description</th></tr>
<tr><td></td><td></td><td>
LIST-TABLE filename BY dictitem list.of dict items (S

Additional option (optional)

<table>
<tr><th>Option</th><th>Description</th></tr>
<tr><td>S</td><td>Display the summary at the end of the listing.</td></tr>
</table>

Comment

As the width of the columns cannot be determined until all the data has been processed,

large data sets will take longer to display.

Example

LIST-TABLE ROOMS WITH ROOM-CODE "ST" BED-TYPE RATE GUEST-NAME LEAVE-DATE (S

<table>
<tr><td>ROOMS</td><td>Bed Type</td><td>Rate</td><td>Current Guest</td><td>Leave Date</td></tr>
<tr><td>365</td><td>WaterBed</td><td>104.00</td><td>Ferguson</td><td>29/07/91</td></tr>
<tr><td>444</td><td>King</td><td>82.00</td><td>Curtis</td><td>26/07/91</td></tr>
<tr><td>222</td><td>WaterBed</td><td>104.00</td><td>O'Brien</td><td>23/07/91</td></tr>
<tr><td>478</td><td>King</td><td>82.00</td><td>Kolman</td><td>29/07/91</td></tr>
<tr><td>354</td><td>King</td><td>82.00</td><td>Taylor</td><td>27/07/91</td></tr>
<tr><td>355</td><td>King</td><td>82.00</td><td>Taylor</td><td>22/07/91</td></tr>
<tr><td>318</td><td>WaterBed</td><td>104.00</td><td>Petrillo</td><td>22/07/91</td></tr>
<tr><td>600</td><td>WaterBed</td><td>104.00</td><td>Kerry</td><td></td></tr>
<tr><td>234</td><td>King</td><td>82.00</td><td>McSweeney</td><td>26/07/91</td></tr>
</table>

9 rows in set (0.003 sec)
</td></tr>
<tr><td>V15.1.0.0403</td><td>91599</td><td>PCL2PDF – Correct handling of delta row compression raster images.</td></tr>
<tr><td>V15.1.0.0404</td><td>91594</td><td>New verb EESEARCH to allow searching of all, selected or single files for character strings
EESEARCH</td></tr>
</table>

Fix No	Bug No	Description

Searches a single file, a list of files or all files in current account for specified character strings. The differences between similar verbs are shown below

FIND	Locates files with an item ID of the required field.
ESEARCH	Locates an item within the named file that contains the given string.
EESEARCH	Will locate items with the required ID or any items which contain the given string.

Syntax

```
EESEARCH {filename} {(options}
```

Syntax elements

Filename	This is the file name to be searched. An asterisk can be used to signify all accounts. If a select list is active, the filename is not necessary and is ignored. If the file name is omitted and no select list is active then a **No items present** error is generated.

Prompts

```
STRING:
```

Enter a character string and press RETURN. The prompt is repeated until only RETURN is pressed. The total character strings entered can consist of up to 500 characters.

Double quotes should not be entered

Option	Description
A	ANDs string together. Items must contain all specified strings.
F	Include the item-id in the search.
N	Selects only those items that do not contain the specified string(s).
O	Sort the resulting matched items in a file alphabetically. Searching large files will slow the process if this option is used.

Fix No	Bug No	Description

R	Suppresses the Item not on file message that is generated if no items are selected.
U	Specifies that case is significant when comparing strings.
W	Specifies that case should be ignored when comparing strings.

Comments

As the search can involve a large amount of data and/or items, the user has a number of opportunities to abort sections of the search using certain keystrokes.

Control-X	aborts the search and immediately returns to TCL.
Control-Y	aborts the search of the current file data section and begins searching the next data section.

The process will check for the use of selected keystrokes before processing a file and after each batch of 500 items in the file.

The name of the file and data section currently being processed is displayed to provide an indication of the progress.

DataBasic object code is not searched.

Case Sensitivity

If neither U nor W is specified, the current data case setting (set with the DATA.CC environment option or the CASE TCL command) is used. See Case Sensitivity for more details.

If both U and W are specified an error message is displayed and results are generated.

Example 1

```
:EESEARCH * (WF
STRING: Henn
STRING: Mc
BP
  BP RESET-DEMO
GUESTS
  GUESTS 143
```

Fix No	Bug No	Description
		GUESTS 234 PAYMENT-CODES PAYMENT-CODES MC SAVE.GUESTS SAVE.GUESTS 143 SAVE.GUESTS 234 6 Items listed. In this example, all files on the current account (HOTEL in this example) are searched for any items containing any of the terms Henn or Mc regardless of case including the item id. The returned results show the file name, data section and item id of those matching items. **Example 2** **:LOGTO ACCOUNT1** **:CASE** [1315] Case sensitive. **:EESEARCH SQL (A** STRING ABC123 STRING DEF456 STRING : STOCK ORDERS ORD001 ORDERS ORD099 INVOICES INV004 3 Items listed. In this example, all files on the current account (ACCOUNT1) are searched for any items containing both the terms ABC123 and DEF456 using the case sensitively of the database (sensitive).
15.1.0.0405	91597	Enhancements to GENML/SGENML to output formats json, html, csv or XML. **GENML, SGENML** **GENML** generates an English listing in the same way as LIST. However, the result is embedded in an optional template specified by the user and saved to a file item. **SGENML** is similar, but its output is in item-id order unless sort criteria specify otherwise. **Syntax** GENML file-specifier {item-list} {selection-criteria} {USING file-specifier} {sort-criteria} {output-

Fix No	Bug No	Description

		specification} {format-specification} {macro-call} {(options}
		
		SGENML file-specifier {item-list} {selection-criteria} {USING file-specifier} {sort-criteria} {output-specification} {format-specification} {macro-call} {(options}
		
		Refer to Sentence Structure for descriptions of these parameters.
		
		Options
		
		Option | Description
		F | Defines items.
		P | Sends the listing to the printer. You will not be prompted for an output file or item.
		T | Sends the output to the terminal. You will not be prompted for an output file or item.
		X | Requests the output type for the results. This can be HTML (the default if none is given), JSON or XML.
		
		If the X option is specified, the following prompt is displayed
		
		Conversion type:
		
		The valid responses are HTML, JSON, XML or <RETURN> . If <RETURN> is pressed, the
		
		default of HTML is used. If an invalid type is given, an "Item not on file error" is displayed and the type requested again.
		
		Operation
		
		When executed, the GENML and SGENML commands prompt an optional format type (see option X), the file and item into which to save the generated results, and for the file and item containing the template into which the Reality data will be embedded.
		
		For example:
		
		`:GENML EMP ID-SUPP TITLE EMPNO WITH EMPNO = "02]"`
		
		`Template file name or <RETURN> for default:HTML`
		
		`Template item name:EMPTEMPLATE`
		
		`Output file name:MYDIRVIEW`
		
		`Output item name:emp.htm`

Fix No	Bug No	Description
		This selects data from the file EMP and outputs the attributes identified by TITLE and EMPNO, suppressing the item-id (the TITLE and EMPNO data definition items use the XT conversion code). The output is embedded in the template item EMPTEMPLATE in the file HTML and saved in item emp.htm in the file MYDIRVIEW. ***Note*** If you press RETURN at the Template file name prompt, you are not prompted for a template item. Instead a simple default template is used. The P and T options respectively send the generated output to the printer and terminal. If you specify either of these options. F Uses a template item containing placeholders that will be replaced by the relevant values in the columns from the data. Each row of data will create an item in the specified file or if the output is to the screen or printer, a continuous listing. This overrides the X option and the supply of a template file and item is mandatory. This allows the user more detailed formatting of the generated data. The template item uses placeholders to indicate where values from a row of data will appear. The placeholders are formatted as <%n%> where n is the number of the column to show the value from. For example, if a row of data consists of 123 VM ABC VM 456and the template contains <%3%>~<%2%>~<%1%>, the resulting data will be 456~ABC~123. Any placeholders that are greater than the maximum number of columns in the data will not be changed. If the output is to a file, the requested output item id will be used to create unique item ids in the file. The entered value will generate an id consisting of the value from the first column of a row of data suffixed with a dot then the entered id. For example, if the value in the first column contains 123 and the entered id is ABC then the resulting id of 123.ABC will be generated. A supplied id containing an asterisk signifies the position of the first columns value in the generated id. For example, an entered id of ABC-*-DEF would result in an id of ABC-123-DEF being used. The asterisk can be used any number of times and each occurrence will be replaced with the first columns value.
V15.1.0.0406	91600	New verb SLS to perform log file reporting and maintenance **SLS** Within Reality there are many SYSTEM LOGS – these may grow, using disk space, slowing save/restore routines etc.

<table>
<tr><th>Fix No</th><th>Bug No</th><th>Description</th></tr>
<tr><td></td><td></td><td>
This new verb allows such data to be removed with optional reporting during the removal process.

Syntax

<code>SLS LOG <lower date>,<upper date></code>

Dates must not contain spaces

Options

<table>
<tr><th>Option</th><th>Description</th></tr>
<tr><td>R</td><td>Delete matches items.</td></tr>
<tr><td>D</td><td>Detailed listing.</td></tr>
<tr><td>S</td><td>Summary listing (default).</td></tr>
</table>

If an upper date is supplied then the comma is required.

Where LOG can b

<table>
<tr><th></th><th></th></tr>
<tr><td>ALL</td><td>All logs</td></tr>
<tr><td>SER</td><td>Services logs</td></tr>
<tr><td>ACC</td><td>Accounting log</td></tr>
<tr><td>PHH</td><td>TIPH log</td></tr>
<tr><td>DBD</td><td>DataBasic Debugger Dumps</td></tr>
<tr><td>TCL</td><td>TCL Audit log</td></tr>
</table>
</td></tr>
</table>

2.3 Reality V15.3 product updates

The following Reality V15.3 service pack was released on 15th February 2021.

Fix No	Bug No	Description
V15.1.0.0407	91601	Enable build of reality on Centos 8/Move to Reality V15.3 • Fix 407 will move Reality to V15.3. When a DBUPDATE is used, the majority of the fixes will already be incorporated into the database and items such as ERRMSG 335, features etc. will be updated to read V15.3.

Fix No	Bug No	Description
		Fix 407 must be installed before building Reality with Centos 8.
V15.1.0.0408	91606	Correct error handling in tlmenu.
V15.1.0.0409	91608	Amendment to realclone -pu to ensure all files are copied rather than just changes.
V15.1.0.0410	91610	Correct handling of Instances under Centos.

The following fixes were released on 9th Sept 2022.

Fix No	Bug No	Description
V15.1.0.0411	91612	Ensure PCL2PDF uses the Java Language Server as the default connection.
V15.1.0.0412	91611	New version of DELETE-ACCOUNT verb to behave as original if run from PROC by PH. Fixes issue in SYS-UPDATE.

V15.1.0.0413	91572	Enhancement to DECRYPT/ENCRYPT to add algorithms for SHA, AES and other openSSL
		ENCRYPT Function
		Two new encryption methods are now supported
		Method 7
		This provides access to the openSSL message digest algorithms for MD4, MD5, MDC2, RIPEMD160, whirlpool, SHA0, SHA1, SHA224, SHA256, SHA384 & SHA512. The algorithm to use is passed as the key parameter of the function. The returned data is binary so care must be taken to process values such as character 255 that may occur in the result.
		Method 8
		This provides access to the openSSL ciphers for AES-128-CBC, AES-192-CBC, AES-256-CBC, DES-CBC and DES-EDE3-CBC. The cipher, key (in hex) and initialisation vector (in hex) are passed as an attribute separated list in the key parameter. The returned data is binary so care must be taken to process values such as character 255 that may occur in the result.
		Examples
		`DIGEST = ENCRYPT("HELLO WORLD","SHA512",7)`
		`HEX = ""`
		`FOR A = 1 TO LEN(DIGEST)`
		`  HEX:=DTX(SEQ(DIGEST[A,1]))"R%2"`
		`NEXT A`
		`PRINT DOWNCASE(HEX)`

Fix No	Bug No	Description

		Displays:
		`13d6c73ac8cceeff9ff6b0ba2ce19c5fc47ac21f9fd403c151fe88e0fd39f4223c29bc9bded59e1e3f272fd969fd6e2e6e35be35072e742c4b36fec48feb87df`
		
		Sets DIGEST to the SHA512 digest of the string "HELLO WORLD" and then displays the result in hexadecimal (variable HEX). This example takes into account that the resulting digest contains the character 255 (FF).
		
		`IV = OCONV("16 characters!?#","MCAX")`
		`KEY = OCONV("Thirty Two character secret key!","MCAX")`
		`CIPHER = "AES-256-CBC"`
		`DIGEST = ENCRYPT("HELLO WORLD",CIPHER:@AM:KEY:@AM:IV,8)`
		`HEX = ""`
		`FOR A = 1 TO LEN(DIGEST)`
		`  HEX:=DTX(SEQ(DIGEST[A,1]))"R%2"`
		`NEXT A`
		`PRINT DOWNCASE(HEX)`
		
		Displays: `de1ab4f1df9fa6831c3cf59abea09200`
		
		Sets DIGEST to the result of applying the AES-256-AES cipher to encrypt the string "HELLO WORLD" using a secret key (KEY) and an initialisation vector (IV) and then displays the result in hexadecimal (variable HEX). This example takes into account that the resulting digest may contain the character 255 (FF).
		
		DECRYPT Function
		Two new decryption methods are now supported
		
		Method 7
		Decrypting a digest is not possible so this function will return a null value
		
		Method 8
		This provides access to the openSSL ciphers such as AES-128-CBC, AES-192-CBC,
		AES-256-CBC, DES-CBC and DES-EDE3-CBC. The cipher, key (in hex) and initialisation vector (in hex) are passed

Fix No	Bug No	Description

		as an attribute separated list in the key parameter. The passed string is binary (as returned from a corresponding ENCRYPT). The returned data is binary so care must be taken to process values such as character 255 that may occur in the result.
		
		Examples
		`DIGEST = OCONV("DE1AB4F1DF9FA6831C3CF59ABEA09200","MCXA")`
		`IV = OCONV("16 characters!?#","MCAX")`
		`KEY = OCONV("Thirty Two character secret key!","MCAX")`
		`CIPHER = "AES-256-CBC"`
		`MSG = DECRYPT(DIGEST,CIPHER:@AM:KEY:@AM:IV,8)`
		`PRINT MSG`
		
		Displays: `HELLO WORLD`
		
		Sets MSG to the result of applying the AES-256-AES cipher to decrypt the digest (DIGEST) using a secret key (KEY) and an initialisation vector (IV) and then displays the result. The digest is originally in hexadecimal so is converted to a binary string before being passed to the DECRYPT function.

V15.1.0.0414	91614	Intercall functions added (U2-VIEW and U2-SET) to allow pointers to a U2 database.
V15.1.0.0415	91617	Fix for issue with incorrect scale being applied for SQL-VIEW numeric and decimal columns.
V15.1.0.0416	91618	U2-CHANGE verb added, to allow U2-VIEWS to enable password amendment with U2-VIEW'S.
V15.1.0.0417	91619	SET-FILE reinstated - only relevant to new databases. The verb had been removed from mkdbase but would still be there in mkdbase -r.
V15.1.0.0418	91620	DELETE-FILE syntax corrected and improved error checking.
V15.1.0.0419	91615	Rebranded to NEC Software Solutions UK Limited.

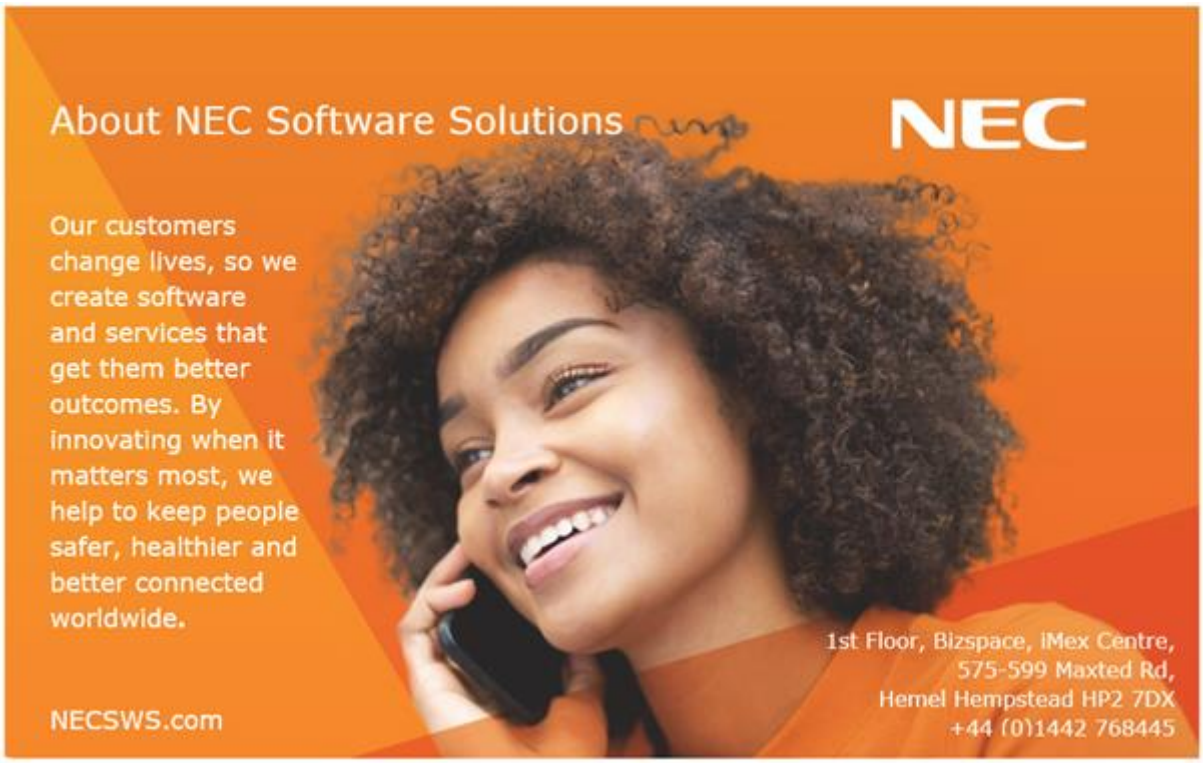
Fix No	Bug No	Description
V15.1.0.0420	85973	Fix for tlmenu perl warnings when selecting to save a database with transaction handling.

2.4 Reality V15.4 product updates

Following is the Reality V15.4 service pack released on 7th September 2023.

Fix No	Bug No	Description
V15.1.0.0421	91623	Update PH-MONITOR to read tmp file from Config file and permit use of windows 12 hour date format USA format.
V15.1.0.0422	91629	Update JSON builder to be able to handle double quotes and slash characters (clog export).
V15.1.0.0423	91624	Enhancement to SP-CLEAR Add a date option to SP-CLEAR (available as an enhanced feature from TCL) which includes an archive feature for records removed. **SP-CLEAR (D** The first time the D option is used, two new files will be created. These files are named SPOOL.JOBS.ARCHIVE and PRINT.JOB.CONTROL.ARCHIVE. This new feature may only be used from TCL. The following section describes the use of the D switch. `:SP-CLEAR (D` Form Queue – STANDARD name of Spool queue to clear Enter date (dd/mm/yy) - 03/04/23 Date after which spool jobs will not be cleared Archive jobs (Y/N) – Y Y or N should spool jobs be copied to archive files Records will be archived to SPOOL.JOBS.ARCHIVE and PRINT.JOB.CONTROL.ARCHIVE If the Archive by date switch has been used as above the spool jobs will be removed from SPOOL.JOBS and PRINT.JOB.CONTROL and will be copied to the archive files from where they may be retrieved if required. NB The archive files will only contain the lastest version of the SPOOL.JOBS and PRINT.JOB.CONTROL
V15.1.0.0424	91631	Cosmetic changes to tlmenu.
V15.1.0.0425	91633	Correct Realclone issue on Windows.

Fix No	Bug No	Description
V15.1.0.0426	91644	Prevent issues arising with large items occasionally creating GFE's when multi threaded restores are performed.
V15.1.0.0427	91640	Ensure that DBSTART, PRESTARTUP and STARTUP Procs are called correctly.
V15.1.0.0428	91624	Further updates to SP-CLEAR (D.
V15.1.0.0429	91641	Prevent DELETE-CATALOG from removing the data portion of the file when the file name is entered in error.
V15.1.0.0430	91622	R Justified Dictionary items may fail to SELECT data correctly.
V15.1.0.0431	91632	Ensure that DELETE-ACCOUNT gives a list of Q Pointered accounts which will be removed and a confirmation prompt before account deletion.
V15.1.0.0432	91605	DIR-VIEWS. Ensure that (D option may be used when copying data between two directory views.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